

B R E V I O R A

Museum of Comparative Zoology

CAMBRIDGE, MASS.

APRIL 10, 1961

NUMBER 137

NOTES ON HISPANIOLAN HERPETOLOGY

4. *ANOLIS KOOPMANI*, NEW SPECIES, FROM THE SOUTHWESTERN PENINSULA OF HAITI

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Among the reptiles and amphibians collected for the Museum of Comparative Zoology in Haiti, with the support of an American Philosophical Society grant, during the summer of 1960, are seven specimens that appear to represent an undescribed species of *Anolis*.

These lizards are small, moderately proportioned, dull colored in life, as well in preservative, and rather nondescript animals. In life the adult males possess a dark gray gular fan and an orange-pink chin and throat that distinguish them immediately from any other Hispaniolan *Anolis*. When this chin and throat color disappears in alcohol, the combination of scale characters distinguishes the species, but there are no unique characteristics.

Dr. Karl Koopman, Assistant Curator of Mammals, Chicago Natural History Museum, provided financial assistance and encouragement that helped to make the collection of these specimens possible. In recognition of his aid the new species is called:

ANOLIS KOOPMANI new species

Type. MCZ 62541, adult male.

Type locality. Carrefour Canon, 350 m. altitude, near Dueis, N. of Aux Cayes, Haiti.

Collector. A. S. Rand and J. Lazell, 4 August 1960.

Paratypes. Adult males, MCZ 62542-3; adult females, MCZ 62544-5; young males, MCZ 62546-7. All from Les Platons, 750

m. altitude, above Carrefour Canon, Haiti, A. S. Rand and J. Lazell, 5 August 1960.

Diagnosis. The presence of a zone of much enlarged middorsal scales, keeled head scales, and keeled, imbricate, and pointed ventrals distinguish this species from all the Hispaniolan *Anolis* except those of the *semilineatus* group (*semilineatus*, *olssoni*, and *cochranae*). It is distinguished from the latter in having 6-8 (not 10) enlarged middorsal rows, 5-8 (not 3-5) loreal rows, and 3-5 (not 1-3) scales separating the interparietal from the supraorbital semicircles. It differs also in coloration, the males having pinkish-orange chin and throat.

Description. (In the following description variations occurring in the paratypes follow, in parentheses, the condition in the type.)

Head. Head scales strongly keeled. Frontal depression moderate. Scales across snout between second and third canthals 8 (7-9). Nares anterior to canthal ridge; separated from rostral by 1 scale. Canthal ridge distinct, not exaggerated, composed of 4 (4-5) large scales preceded by 2 (1-3) small ones. Second canthal largest, third next in size, first and fourth subequal.

Posterior frontal subequal to (slightly smaller than) anterior supraorbital; separated from canthals by 2 (1-2) scales. Anterior supraorbital separated from canthals by 3 (2-3) scales. Supraorbital semicircles separated by 3 (1-3) scales; separated from supraocular disc by one row of small scales (occasional narrow contact). Supraocular disc of 5-6 (5-7) enlarged keeled scales; separated from superciliary by 5-6 rows of granules. A single elongate superciliary. Interparietal scale slightly smaller than ear ($\frac{1}{2}$ to slightly smaller); separated from supraorbital semicircles by 4-5 (3-5) scales.

Seales in center of supratemporal area, granular, smaller than flank scales, smallest in center. Scales over temporal bar not (very slightly) enlarged. Temporal scales like supratemporal scales. Suboculars broadly in contact with supralabials, separated from canthals (very narrow contact), not continued behind eye as a series of large scales. Supralabials to center of eye 5 (5-6). Loreal rows 5 (5-8). Loreal scales subequal in size.

Mentals broader than long, in contact with 6 (5-6) throat scales posteriorly. No series of enlarged sublabials. Central throat scales small, elongate, keeled.

Gular fan: Gular fan small. Scales slightly smaller than (subequal to) ventrals, keeled.

Trunk: Middorsal scales much larger than flank scales, grad-

ing into them. Rows of enlarged middorsals 6-8. Ventral scales larger than middorsals, imbricate, keeled.

Limbs and digits: Scales on arms and legs larger than ventrals, multicarinate. Hand and foot scales multicarinate dorsally. Lamellae under phalanges 2 and 3 of fourth toe 18 (17-19). Interdigital pads narrow.

Tail: Tail round in cross-section. Verticils indistinct. Enlarged postanal scales present in males.

MEASUREMENTS

Sex	MCZ #	Snout-vent length	Total length	Head length	Tibia length	Hind leg length
male	62541	34 mm	114 mm	9 mm	11 mm	28 mm (type)
"	62542	39	135	10	12	33
"	62543	38	—	10	12	31
"	62546	23	68	6	7	18
"	62547	21	—	6	7	17
female	62544	33	—	7	9	26
"	62545	33	109	8	10	26

In life a low nuchal and dorsal crest seems permanently raised (absent in females and young males).

Color in life: Male, MCZ 62542, uniform gray-brown above; a whitish line, black edged above, from over shoulder to hind leg, indistinct for the posterior half of its length, below this line the flanks with scattered dark spotting. Belly light brown, chin and throat pale pinkish-orange, with a few scattered black spots, gular fan scales colored like the chin, but the skin dark gray; iris blue.

Female, MCZ 62544, plain brown above, a middorsal stripe with a scalloped margin outlined with darker brown, a yellow stripe from below eye to over shoulder, continued faintly to hind leg; venter yellowish with faint dark spotting on throat; iris blue.

Habitat: The type was taken in a bush along a trail at the edge of a coffee grove. It was found at dusk among small twigs about three feet above the ground where it probably had climbed to spend the night.

Of the six paratypes, three adults were found in heavily shaded coffee groves. All were on the ground among damp leaf litter. One juvenile was found six inches up in low herbaceous vegetation at the edge of the coffee grove. The others were purchased from a small boy for two cents each.

Relationships: The relationships of this species are obscure;

it does not seem to be particularly close to any species now known either from Hispaniola or elsewhere.

The only *Anolis* outside of Hispaniola that are at all similar to this species are the *alutaceus*, *clivicolus*, *spectrum*, *cyanopleurus* groups of Cuba, and this similarity lies primarily in the presence of a zone of enlarged middorsals and does not extend to other details. I interpret this as parallelism.

Within Hispaniola, *A. koopmani* is superficially most like *semilineatus* and *olssoni*. A zone of enlarged middorsals, keeled imbricate, pointed ventrals, keeled head scales, a lateral stripe, narrow digital expansions and small size occur also in *semilineatus* and *olssoni* and suggest a relationship to them. However, most of these characters are not unique to *semilineatus* and *olssoni* even in Hispaniola. The nature of the zone of enlarged middorsals (fewer rows that decrease in size laterally), the strong sexual dimorphism in color, the less attenuate body shape, and generally smaller scales all argue against this relationship.

Anolis ricordi, *distichus*, *cybotes*, *armouri*, *shrevei*, *chlorocyanus*, *coelestinus* and *Chamaelionorops wetmorei* all have specializations that seem to exclude them from close relationships with *koopmani*.

The remaining species, *Anolis monticola*, *darwingtoni*, *christophei*, *hendersoni*, *bahorucoensis* and *Xiphocercus darwingtoni* are poorly known. It is possible that some if not all of them are closely related to one another and that *koopmani*'s relationships lie with these. However, until more information is available for this assemblage of species, particularly in regard to color in life, behavior and ecology, this hypothesis must remain very tentative.

Acknowledgments: I am grateful to Dr. Ernest E. Williams for his advice and to Mr. James Lazell and M. Lue Whiteman for their assistance in the field. I wish also to thank M. Leonce Bonnfil fils and the other members of the Department of Agriculture of Haiti who helped us in so many ways.